

HENRYS LAKE ENHANCEMENT PLAN

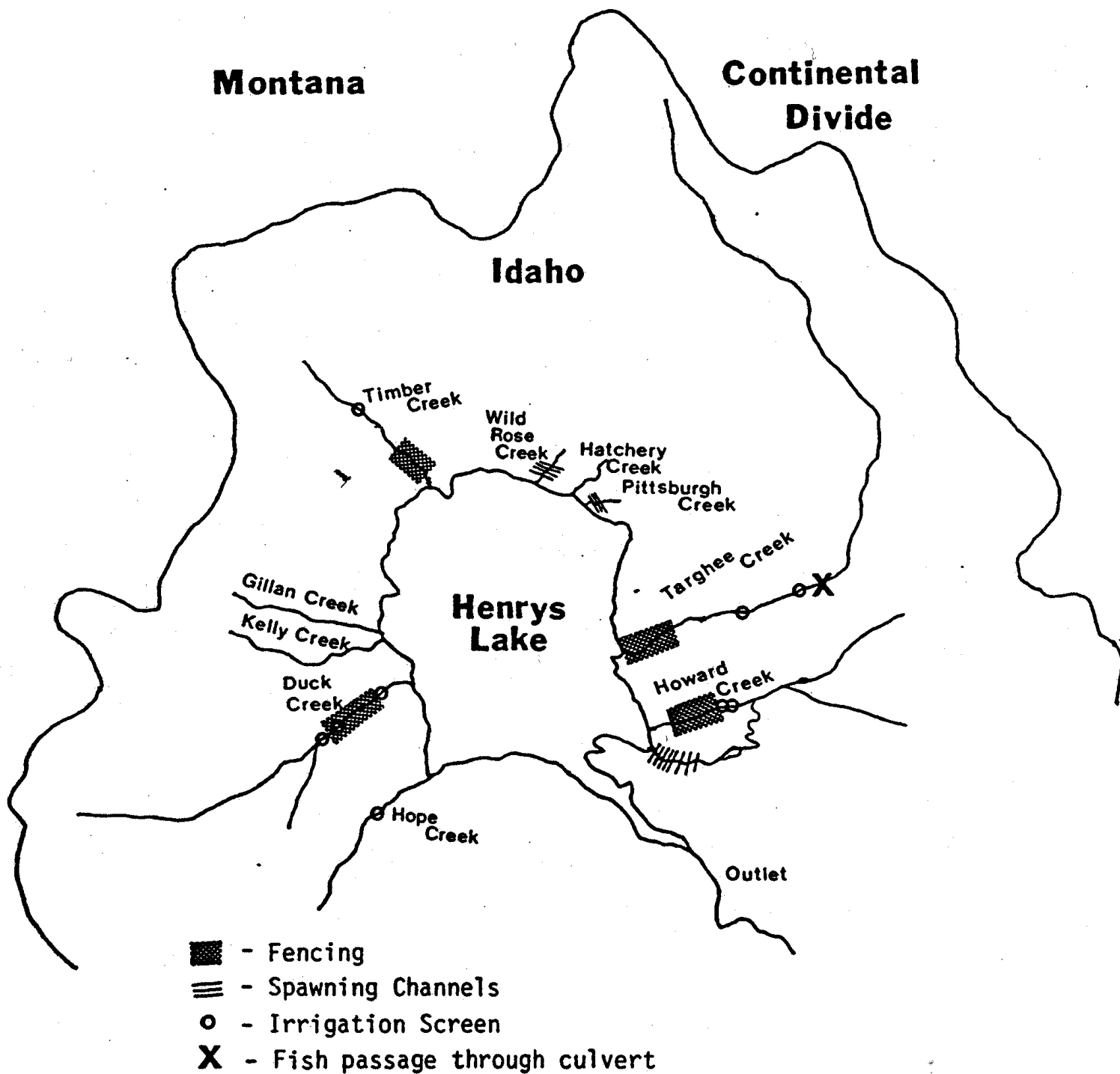
Henrys Lake has a long history of supporting an excellent fishery for large native cutthroat trout (over 2 lbs.) and lesser numbers of brook trout. Rainbow x cutthroat hybrids, although noted as being present since 1924, have provided significant catches only since the mid-sixties when stocking efforts were increased. The fast growth to large size (up to 10 lbs.) and highly valued sporting qualities of the hybrids sought by the public led the Idaho Fish and Game Commission to establish a "trophy trout" status for the management of Henrys Lake in 1976. Rainbow x cutthroat hybrids were designated to provide about 20% of the fishery, cutthroat 65%, and brook trout 15%. Restrictive regulations (3 fish limit) were thus established in 1976 to reduce angling mortality so as to allow more fish to grow to larger sizes. Since maintenance of a hybrid population requires a pure strain cutthroat, management of Henrys Lake still has to focus on providing adequate numbers of pure cutthroat spawners back to the hatchery for eggs with which to cross with rainbow.

The declines in the size of spawning runs to the Henrys Lake Hatchery from an average of 9500 to about 2500 cutthroat in 1980 and 1981 have been paralleled by declines in catch rates and populations of cutthroat. Catch rates for cutthroat have gone from a 25 year average of .40 fish/hour to an average of .07 fish/hour since 1979. Population estimates show a 70% to 90% decline in numbers of catchable-size fish since 1976. These reductions resulted in the Idaho Department of Fish and Game placing further restrictions on harvest to only two fish.

The national prominence Henrys Lake has received in the past results in a large portion (about 40%) of the fishermen being non-resident. The declines in the fishery have also resulted in reduced numbers of non-resident fishermen and a resultant economic loss for resorts and tourist facilities.

The major reason for the drastic decline in the Henrys Lake fishery during the last five years is thought to be the result of lost natural reproduction and recruitment of cutthroat in tributaries. The causes for declines in tributary production are loss of fry to irrigation ditches and dewatering of stream segments which interrupt migration to the lake. Studies on Howard and Targhee Creeks show losses of 90% to irrigation ditches. Although these problems are not new, they have been very obvious with the multiple years of low stream flows from drought and near-drought conditions since 1976, which have nearly destroyed natural spawning runs and recruitment.

Although the Henrys Lake Hatchery provides supplemental cutthroat fry to the lake, until 1980 it had not provided more than 25% of the recruitment needed to produce a cutthroat fishery with catch rates of .4 fish/hour. The major purpose of the Henrys Lake Hatchery was to provide cutthroat for introduction into other areas. The cutthroat run developed at Hatchery Creek is maintained by hatchery introductions and does not decrease the number of spawners using other tributaries. The present hatchery program at Henrys Lake calls for planting two million fingerling cutthroat 2.5 inches long, 200,000 fingerling hybrids, and 50,000 brook trout fingerlings. Past stocking levels averaged about 1,000,000 cutthroat fry 1.0 inch in length. Since 1979 all cutthroat eggs taken have been used exclusively in Henrys Lake. We expected to have some cutthroat in excess of Henrys Lakes needs in 1982. Even though the Henrys Lake Hatchery will be instrumental in rebuilding the populations of cutthroat at Henrys Lake and could maintain the fishery, reliance on hatchery fish for the majority of cutthroat recruitment needs for the long term is not



Map of Henrys Lake showing tributaries and areas of proposed enhancement activities.

advisable. Subtle changes in genetics and loss of fish through disease and mechanical problems at hatcheries leads us to literally not want to put all of our eggs in one basket. The rebuilding of wild stocks to provide a minimum of 50% cutthroat is thus advised.

The maintenance of a healthy wild cutthroat trout population at Henrys Lake will require increasing recruitment from the tributaries to near historical levels of four to five million (2.5 million if 50%). Stream maintenance flows and screening irrigation ditches, along with habitat stabilization and improvement, will have to be implemented to accomplish this goal. Since most stream flows are fully appropriated, the only methods for obtaining maintenance flows are to obtain existing water rights or develop new water sources by drilling wells. Screening irrigation diversions need not wait until water is obtained as some streams have enough flow to pass fry to the lake in normal water years. Many stream segments suffer from loss of riparian habitat and increased silt loads. Fencing of these areas may be necessary to allow good survival of eggs and fry. A high level of cooperation and involvement of landowners is important to the accomplishment of these programs.

Priorities and projects needed to re-establish wild cutthroat in Henrys Lake are as follows:

- A. Screen irrigation headgates to prevent large numbers of fry being lost during downstream migration. Priorities for screens are:

1. Targhee Creek (2 screens)
2. Howard Creek (2 screens)
3. Duck Creek (3 screens)
4. Timber Creek (1 screen)
5. Hope Creek (1 screen)

Estimated cost for installation of all screens is \$40,000 to \$45,000.

- B. Obtain maintenance flows for tributaries to Henrys Lake. Priority of tributaries should be:

1. Targhee Creek
2. Howard and Duck Creeks
3. Timber Creek
4. Kelly Springs
5. Pittsburg and Wild Rose Creeks

Based on cutthroat spawner use in 1954-55 maintenance flows needed are presently unknown, but any amount will be of value in passing fry.

- C. Construct spawning channels in areas with known spawner rubs but with little or degraded habitat. Areas to place emphasis on are:

- | | |
|------------------------|------------|
| 1. Wild Rose Creek | 500 feet |
| 2. Pittsburg Creek | 300 feet |
| 3. Howard Creek Slough | 2,000 feet |

- D. Fence streambanks and replant riparian vegetation. Put initial emphasis on stream segments below ditches with adequate water available:

Stream	Miles of Fence	Cost Estimates
1. Timber Creek	.6	\$800-1,000
2. Howard Creek	2.0	\$2,000-2,500
3. Targhee Creek	1.0	\$1,100-1,300
4. Duck Creek	2.0	\$2,000-2,500

- E. Hatchery goals:

1. Short-term: maintain quantities of fish introduced at 2,000,000 2.0 to 3.0 inch fingerling cutthroat and 200,000 hybrids for 1982 and 1983.
2. Long-term: evaluate and adjust hatchery introduction of cutthroat to maintain catch rates (.45 fish/hour as natural production increases.
3. Adjust brook trout stocking to maintain catch rates (.1 fish/hour).

The time frame necessary to implement these programs will be directly dependent upon the amount of money and time dedicated to them. A realistic time frame would be by 1986 or 1987, with initial work beginning in 1984.

HENRYS LAKE ENHANCEMENT PLAN
1982-1987
Goals for the Fishery

1. Re-establish cutthroat trout as the primary species in Henrys Lake. Increase populations to provide catch rates of .45 fish/hour with 10% larger than 20 inches (3 lbs.).
2. Manage hybrid populations to provide catch rates of .15 fish/hour with 20% larger than 20 inches (3 lbs.).
3. Manage brook trout populations to produce catch rates of .1 fish/hour with 5% larger than 17 inches (2.0 lbs.).

NOTES

Total catch rate of .70 fish/hour with 65% cutthroat, 20% hybrid and 15% brook trout. These ratios may be different when catch rates are below .70 fish/hour, depending on which species is depressed as in 1980 and 1981. (Assumes released fish make up the same percentages of the catch as creel fish).

PITTSBURG AND WILD ROSE CREEKS; HOWARD CREEK SLOUGH

Pittsburg and Wild Rose Creeks are small spring-fed streams which flow through Henrys Lake Lodge and Wild Rose Resort. Although spawners are found in these streams, little spawning habitat is available for egg deposition. Stream improvement activities would allow moderate spawner use and success. Installation of gravel retaining devices will create several hundred feet of spawning channels and improve spawning success.

Program Priorities	Cost Estimates
1. Construct spawning habitat to improve spawner success and egg survival	\$2,000
2. Obtain water rights for instream flow use	Donation

The goals for these streams are 600 adults returning to spawn and 100,000 fry recruited to the lake.

KELLY (SPRINGS) CREEK

Kelly (Springs) Creek supported 5% of the spawning run in 1954 and 1955. No irrigation diversions are presently known to exist, although the entire flow has been appropriated. Habitat is in good conditions.

Program Priorities	Cost Estimates
1. Obtain water rights	

The goals for Kelly (Springs) Creek are 900 adults returning to spawn and 100,000 fry recruited to the lake.

TARGHEE CREEK

Targhee Creek historically supported 49% of the spawning runs during 1954 and 1955. Highest priority should be given to enhancing passage of fish to Upper Targhee Creek. The lower three miles is privately owned with about one-half mile of overgrazing and streambank damage needing to be fenced. Water rights need to be obtained from the highway downstream. Two irrigation diversions near the highway need screening.

Program Priorities	Cost Estimates
1. Screen irrigation diversions	\$6,000-10,000
2. Improve fish passage through Highway 87 culvert	Dept. of Transportaton
3. Obtain water rights on Targhee Creek	Donation (wells (\$40,000-50,000))
4. Build fish trap facilities to monitor runs and fry recruitment	\$2,000

The goals for Targhee Creek are 12,000 adults returning to spawn and 1,300,000 fry recruited to the lake.

HOWARD CREEK

Howard Creek supported 16% of the spawning runs during 1954 and 1955. Howard Creek has two major irrigation diversions which have been found to result in a 90% loss of downstream moving cutthroat fry. The majority of the best spawning and rearing habitat is above Highway 87 and passage needs to be improved. The lower two miles of Howard Creek lacks adequate riparian vegetation and streambank cover, which would benefit from fencing. Screening of irrigation ditches should receive high initial priority.

Program Priorities	Cost Estimates
1. Screen two irrigation diversions	\$6,000-10,000
2. Fence the lower two miles of stream	\$2,500-3,000
3. Obtain water rights	none known available

The goals for Howard Creek are 3,800 adult returning to spawn with 400,000 fry recruited to the lake.

TIMBER CREEK

Timber Creek historically supported 10% of the spawning runs during 1954-55. Presently, Timber Creek is in the best condition of any major Henrys Lake Tributary; only one diversion is in operation and it diverts water to Staley Springs Ranch (3.0 cfs). Another 1.6 cfs water right is also held on Timber Creek. Some streambank damage (500 yards) is evident and may require fencing. Timber Creek should receive high priority to obtain water rights.

Program Priorities	Cost Estimates
1. Obtain water rights on Timber Creek	Donation
2. Build 3,000 feet of fence	\$800-1,000
3. Construct fish trap facilities to monitor run and recruitment	\$2,000

The goals for Timber Creek are 12,500 adults returning to spawn and 300,000 fry recruited to the lake.

DUCK CREEK

Duck Creek supported 20% of the spawning runs during 1954 and 1955. Duck Creek is the most impacted tributary of Henrys Lake. Lack of water, numerous diversions and poor habitat quality due to loss of riparian vegetation all need attention. Emphasis should be on passage of fry from upstream spawning areas to the lake. This tributary will be the most difficult and expensive to improve because of the severity and extent of the degradation and number of diversions.

Program Priorities	Cost Estimates
1. Screen irrigation diversions (3 screens)	\$8,000-16,000
2. Obtain water rights (if available)	(\$10,000-25,000 for wells)
3. Fence one mile of lower stream	\$2,000-2,500

The goals for Duck Creek are 5,000 adults returning to spawn with 600,000 fry recruited to the lake.



July 1982

The Henrys Lake Enhancement Plan represents the need to improve and stabilize the Henrys Lake fishery, as determined by the Idaho Department of Fish and Game. Most projects are designed to give long-term stability to natural production of cutthroat. As new information is gained and analyzed, some projects may need changes in emphasis.

This document will be used by Department personnel in making decisions on management activities and fund expenditures for improvement of the Henrys Lake fishery. It can also be used as a guide for interested clubs and organizations to use in selecting projects to help in the improvement of the Henrys Lake fishery.

Any questions concerning the Henrys Lake Enhancement Plan should be directed to the Department of Fish and Game, Region 6, Idaho Falls, phone 522-7783.

Sincerely,

Tom Reinecker
Regional Supervisor
Region 6

Attach.